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PLANTalks

PLANT SCIENCE AND LANDSCAPE ARCHITECTURE SEMINAR SERIES

Signal Transduction via the RNA Structurome in Arabidopsis and Rice

By Sally Assmann, Penn State University

November 10, 12-1pm, W.B. Young 002

RNA structure is intimately connected to RNA function. Because RNA structure is highly sensitive to the physico-chemical environment, the structure of the same RNA molecule can differ radically *in vitro* vs. *in vivo*. We recently developed a method, Structure-seq, which combines chemical probing of RNA structure with high throughput sequencing to allow characterization of RNA secondary structure genome-wide and *in vivo* (1-3). Our initial application of Structure-seq to Arabidopsis revealed significant correlations between DMS reactivity and several aspects of gene regulation (1). We have recently applied Structure-seq to rice seedlings with the goal of revealing general principles underlying RNA structure changes induced by temperature stress. These data will be discussed, along with thoughts concerning the ecological relevance of RNA structure.

About the presenter:

Sally Assmann, Ph.D.
Waller Professor of Biology
Penn State University
http://www.personal.psu.edu/sma3/

Related References:

Ding Y, Tang Y, Kwok C-K, Zhang Y, Bevilacqua PC, Assmann SM 2014. *In vivo* genome-wide profiling of RNA secondary structure reveals novel regulatory features. Nature 505: 696-700 (PMID 24270811).

Ding Y, Kwok CK, Tang Y, Bevilacqua PC, Assmann SM 2015. Genome-wide profiling of *in vivo* RNA structure at single-nucleotide resolution using structure-seq. Nature Protocols 10: 1050-1066 (PMID 26086407).

Bevilacqua PC, Ritchey LE, Su Z, Assmann SM. 2016. Genome-wide analysis of RNA secondary structure. Annual Review of Genetics, 50: 235-266. (PMID 27648642).

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Contacts: Rosa Raudales (rosa.raudales@uconn.edu) & Jonathan Mahoney (jonathan.mahoney@uconn.edu)

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Fall 2017

Friday at 12-1 pm, W.B. Young 002

Date	Topic	Speaker
October 27	Phoenix Plaza: The Greening of a Modernist Icon	Robert Golde, Landscape Architecture Towers|Golde Site Planners & Landscape Architects
November 3	Daily Rhythms and the Transcriptional Regulation of Plant Biomass Accumulation	Samuel P. Hazen, Associate Professor UMASS Amherst
November 10	Signal Transduction via the RNA Structurome in Arabidopsis and Rice	Sarah M. Assman, Waller Professor of Biology, PennState University
November 17	Restorative Landscapes for Environmental & Human Health	Claudia Dinep, Principal with Dinep+Schwab Landscape Architecture|Ecological Design
December 1	Site Design for the Obama Presidential Library	Joseph Bivona, ASLA with Michael Van Valkenburgh Associates , Inc. of Brooklyn, New York

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